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ABSTRACT

This study examined the relationship between early language measures and kindergarten literacy measures for children from 40 low-income families. Early literacy measures were based on conversations between mother and child during a book-reading session; the child's report of an event as elicited by the mother; and mealtime. Conversations were recorded at home when the child was 3 and 4 years old. Literacy outcomes were measured by: (1) the Peabody Picture Vocabulary Test (PPVT); (2) the Test of Nonverbal Intelligence (TONI); (3) the Comprehensive Assessment Program (CAP) of the Early Childhood Diagnostic Instrument; and (4) instruments that assessed decontextualized oral language skills, including picture description, word definition, narrative construction, and story comprehension. These tests were administered in the home when the child was 5 years old. There were correlations between: (1) the elicited report index and word definition and narrative construction; (2) explanatory talk at mealtime and the PPVT and picture description; (3) narrative talk at mealtime and story comprehension; and (4) various measures of nonimmediate utterances during book reading and CAP scores, story comprehension, and narrative construction. Results support a multicomponential view of language. A reference list of 22 items is included. (BC)

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Reading, Reporting, and Repast: Three R's for Co-Constructing Language and Literacy Skills

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It is a well-documented finding that children from low-income families do not achieve as well in school as their middle-class peers (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966; National Assessment of Educational Progress, 1981, 1985). Both NAEP reports have indicated that middle-class children are reading and writing better than children from low-income families. The Coleman Report found that the gap between the reading abilities of children of different socioeconomic status groups expands as the children advance through grade levels. The 1985 NAEP report indicates that low-income seventeen-year-olds are reading no better than the high elementary school level, on average. Surveys of the status of literacy in the United States indicate that, while there are not large numbers of people unable to decode simple texts (perhaps only about 5 percent are illiterate using this definition), many citizens do have literacy skills so limited that they cannot read newspapers easily, understand manuals for the operation of mechanical equipment, write letters, fill in any but the simplest form, or in other ways function as informed citizens capable of maintaining the types of jobs which will increasingly be available in the 21st century (Kirsch & Jungeblut, 1987). Among those with limited skills we find a disproportionate number who come from low-income families and who may also raise their own children in poverty.

Although the children of low-income families are more likely to experience difficulties with literacy development, some of these children will be successful in developing appropriate literacy skills. In this paper we will investigate aspects of these children's home environments that support language and literacy development and permit these children to be successful in school.

Considerable research now suggests that, in addition to the phonemic awareness skills which support early decoding, skilled reading also requires more general oral language competencies (Snow, 1991, in press; Snow & Dickinson, in press; Velasco, 1987, 1989). In brief, the argument is that oral language should not be seen as being a monolithic capacity; rather, children develop an array of language skills each related to a different set of purposes. These various oral skills are differentially related to literacy. One major function language serves is to enable negotiation of interpersonal relationships; the skills relevant to interpersonal negotiation are honed through face-to-face conversations in which speakers and hearers may draw upon such resources as shared knowledge, gesture, interactive negotiation of meaning, and listener feedback.

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These physically, socially, and historically contextualized uses of language contrast with decontextualized uses of language that convey novel information to audiences who are at a distance from the speaker and who may share only limited amounts of background knowledge with the speaker. Skill at using language for these different purposes is not evenly distributed across speakers. For example, Snow's work with two samples of bilingual school-aged children has revealed low correlations between skill at contextualized and at decontextualized uses of language within a single language (e.g., English) but high cross-language correlations for either contextualized or decontextualized tasks (e.g., English to French) (Lanauze & Snow, 1989; Schley & Snow, 1991; Snow, 1990, 1991; Snow & Dolbear, 1988). The finding that oral language abilities fall out into different clusters is particularly significant because only the more decontextualized language skills have been found to relate to literacy (Cummins, 1983; Snow, 1983, 1987; Snow, Cancino, Gonzalez & Shriberg, 1989). Thus, we hypothesize that early development of skill with decontextualized language will be related to reading comprehension abilities when children are in the middle grades of school. For preschool-aged children, decontextualized language skills are reflected by (and may be developed during) engagement in extended discourse forms such as explanations or personal narratives and in the use of language to create fantasy worlds and convey information to relative strangers.

Following the lead of much recent reading research (Snow & Dickinson, in press), we also assume that reading is a multi-componential skill. As such, we assume that different components are fostered by different experiences. For example, while early exposure to rhyming materials may foster phonemic awareness, opportunities to use language to convey novel information may support development of decontextualized language skills which, in turn, bolster reading comprehension. Other recent research on early literacy shares our assumption that certain types of language skill associated with written language are critical for later reading. However, with few exceptions, this work implicitly assumes that these language skills result from direct contacts with print, e.g., during book-reading. In contrast to this model of literacy development, we believe that the language skills that support reading emerge as a result of a variety of interactive experiences during which children learn to use and understand decontextualized language.

The model we are working with (see Figure 1) identifies four domains of skill developed during children's preschool years: conversational language skill, decontextualized oral language skills, print skills, and emergent literacy skills. We expect that different kinds of experiences during the preschool years facilitate the development of skills in each of these domains. Of course, some experiences, like reading books with a parent or preschool teachers, may develop aspects of skills in more than one domain, e.g., print, emergent literacy, and decontextualized oral language skills. Furthermore, we argue that school literacy outcomes in grades one and two may be quite strongly related to preschool print skills, whereas school literacy outcomes in grades four and higher, when reading comprehension becomes an important factor, may be more strongly related to oral decontextualized language skills.

Specific hypotheses that emerge from this model include the following:

- Preschool children will show patterns of oral language skill that replicate those we have found for older children: there will be high correlations across measures that reflect ability to use language in decontextualized ways, and low correlations between contextualized and decontextualized tasks.

- Certain social experiences at home will relate to children's contextualized oral skills, whereas quite different aspects of home experiences will predict their decontextualized skills.

- Emergent literacy skills that relate closely to print knowledge will be predicted by experience with print, exposure to print, and direct teaching of print skills, but will not relate to decontextualized oral language skills.

- Preschool print skills will predict reading achievement in first grade, and to some extent in second grade, but not so strongly in third or fourth grade as decoding ability becomes a much less important source of individual differences in reading.

- Decontextualized oral language skills at ages 5, 6 and 7 will show moderate correlations to reading scores in first or second grade, and will show increasingly strong emergent correlations with reading achievement as the children enter the higher grades and reading comprehension skills become a more important determinant of performance on reading tests.

While there is considerable support for our view of literacy and its development, no multi-dimensional longitudinal research has directly addressed the questions of interest to us. Thus, our work is the first to deal adequately with a whole array of hypotheses about the relationships between preschool experiences and later literacy outcomes. In this paper, we will attempt to deal with the following questions:

1. What are the sources of social support for the development of a) print knowledge, b) emergent literacy, and c) decontextualized language skills in the home?

2. What is the pattern of relationship among various oral contextualized and decontextualized language skills? How do they relate to print and emergent literacy skills in kindergarten?

The Home-School Study of Language and Literacy Development, is a project which is currently engaged in a longitudinal study designed to explain why some children of low-income families are successful with literacy development while others are more likely to experience difficulties. Eighty low-income families (in two cohorts of about 40 each) with preschool-aged children have been recruited from the Boston area to participate in the project, which involves observation and testing of the children at home and at school. The Home-School Study is currently in its fourth round of yearly data collection; the children in the first cohort are six years old, while children in the second cohort are five years old. Future plans for the project include following the same children through third or fourth grade in order to have a more complete picture of literacy outcomes.

In this paper, we will examine the relationships between early language measures as predictors of kindergarten literacy measures. The data described in this paper are drawn from two sources: 1) the talk that took place between mothers and target children during three specific activities at their own homes: book reading, elicited reports and mealtimes, and 2) a battery of standardized tests and early literacy measures,

administered in the home when the child was five. In the following sections, each activity and test will be described and distributions of specific measures derived from that activity will be described. Only results from the first cohort have been analyzed to date (39 families).

Home Language Activities

During the three home language activities, mothers and children displayed a wide variety of styles of interaction. We have devised coding schemes for each task to measure features of interaction that may be most conducive for and predictive of school literacy.

Book Reading

At each home visit the mother was asked to look at a book brought by the experimenter, The Very Hungry Caterpillar by Eric Carle, and to look at a book chosen by the mother and familiar to the child. A second book was provided if the mother did not provide a familiar book.

Book reading was, in almost all cases, necessarily shaped and directed by the mother. Most mothers used a style of asking questions at intervals throughout the reading of the text. Two measures were of particular interest during the book reading activity. An information index was created as the ratio of the number of times the child gave information (both responses and spontaneous comments) to the mothers' requests for information. An information index of 1 indicated that the child answered the mother's questions and did not say more. An index greater than 1 indicated that the child was spontaneously providing information beyond that which was requested by the mother. An index smaller than 1 meant that a mother was making more than one request in order to elicit one response from the child.

The second measure of interest involved the content of the talk. All utterances by the mother and child were coded to indicate whether the comments and questions were immediate or non-immediate. While reading, the topic of the language used may be restricted to what the mother and child see before them, or the book may provide a joint topic and starting point for facilitating talk about what is not immediately present: previous experiences, predictions, thoughts, and associations. Non-immediate utterances move away from what can be seen on the page and include requests for thoughts and analyses about the character's motivation or spontaneous connections to the child's own world. Non-immediate talk is considered to be a type of decontextualized language skill, because it is more explicit, requiring less reliance on shared physical context. Non-immediate interactions around the book may more closely reflect the skills that will be required in school for later successful literacy and school achievement. Example 1 contains non-immediate utterances by both mother and child.

Example 1

*Child:	why she going to eat Hansel and Gretel?
*Mother:	because she was hungry.
*Child:	why was she hungry?
*Mother:	because she didn't have any food.
*Child:	but that's not food.

*Mother: I know it's not food.
*Mother: but she was a mean old witch and she ate little girls and boys.
*Child: but / but there's no / the witch in here.
*Mother: there's a witch in this book.
*Child: not in here.
*Mother: yeah / no not here!
*Mother: there / witches are only make believe.
*Child: but I like 'em.

For example, the child engages in non-immediate talk when she asks her mother about the witch's motive for eating Hansel and Gretel. When the mother points out that witches are only make believe, a fact not explicitly stated in the text, she is contributing to the child's world knowledge.

Table 1 presents the amount of non-immediate talk by the mothers, the percent of non-immediate talk during the reading of the book by both mothers and children, and the information index, for both the book provided by the experimenter and the book of choice, on both home visits.

Table 1

Book Reading Variables

Variable	n	Mean	SD	Range
% of Non-Immediate Talk Book V (age 3)	39	10.5	7.3	0-23.8
% of Non-Immediate Talk Book V (age 4)	37	12.7	10.1	0-37.5
% of Non-Immediate Talk Book X (age 3)	39	10.4	9.8	0-41.2
% of Non-Immediate Talk Book X (age 4)	38	16.1	15.0	0-42.9
# of N-I Utterances by Mother V (age 3)	39	4.4	3.6	0-12
# of N-I Utterances by Mother V (age 4)	37	3.8	3.4	0-15
# of N-I Utterances by Mother X (age 3)	39	4.4	5.6	0-24.0
# of N-I Utterances by Mother X (age 4)	38	5.1	6.4	0-28
Information Index Book V (age 3)	38	1.4	1.1	0-4.0
Information Index Book V (age 4)	36	1.6	1.2	0-5.0
Information Index Book X (age 3)	39	3.1	5.1	0-29.0
Information Index Book X (age 4)	38	2.7	4.2	0-21.0

V Very Hungry Caterpillar
X Book of choice

There is a trend towards a higher proportion of non-immediate talk during the second home visit. Although the proportional amount of non-immediate talk seems to increase with the older child in the reading of both types of books, the actual number of utterances of this type by the mother only increased slightly with the book of choice. When the mother read The Very Hungry Caterpillar the second time, she seemed to use less non-immediate talk. The higher proportion may be accounted for by an overall

decrease in the amount of talk during reading from the first to the second visit. A slight increase occurred between ages 3 and 4 in the reading of the book of choice. The actual numbers, however, are an indicator of how rarely this type of talk occurs even with a familiar book. Although the children were older than four and a half years old at this visit, more than 80 percent of the talk about the book is either irrelevant to the content of the book or about immediately available information. The skills of the child that enable talk about the past, the meaning of words, interpretations of motives or feelings are being tapped less than 20 percent of the time.

The information index suggests that with the novel book (The Very Hungry Caterpillar) children do little more than answer their mothers' questions. Although the book is somewhat familiar on the second home visit and many children reported reading it at school, their involvement does not increase on the second visit. However, the index for the familiar book at ages 3 and 4 reflect greater involvement by the children; on average, they give about three times as much information as mothers request.

Elicited reports

During the home visit, mothers were asked to elicit a report of an event that the child had participated in. This was a fairly constrained activity in which mothers generally suggested an event that both had attended and then asked the child a series of questions about the location, participants, and major occurrences in order to get the story told to the experimenter. Example 2 is a typical elicited report.

Example 2

*Mother:	tell me something.
*Mother:	remember what we did Sunday?
*Mother:	where did Mommy take you?
*Mother:	Sean got to go on the boat.
*Mother:	where did we go?
*Mother:	all by yourself.
*Child:	sprink.
*Mother:	sprinklers.
*Mother:	and what did we do there?
*Child:	go in the sprinkles?
*Child:	on a swing?
*Mother:	on the xxx swings.
*Mother:	on the sprinklers.
*Mother:	and what did we have there?
*Mother:	what did we also we get?
*Mother:	before we went there?
*Mother:	did you get your lunch?
*Child:	0.
%gpx:	nods
*Mother:	what did you get for lunch?
*Child:	hamburgers.
*Mother:	from where?
*Child:	from MacDonald's.

(continues)

In this report, the mother initially had to prompt the child five times before getting a response. The child's contributions are triggered by the mother's questions.

Like the book reading transcripts, elicited reports were coded for the give and take of information between mother and child, and an index of child's give information moves divided by the number of mother's requests for information was computed for each elicited report. In addition, the child's number and proportion of utterances in which she gave information spontaneously were recorded. In the above example, the child's utterance "on a swing." is considered a spontaneous giving of information, because the child had answered his mother's question in the previous utterance and was giving additional information. Table 2 displays the means and ranges of the information index, the number of times the child gave information spontaneously, and the percent of the child's give information utterances that were spontaneous.

Table 2

Elicited Reports Variables

Variable	n	Mean	SD	Range
Information Index (age 3)	37	0.76	0.65	0-3.50
Information Index (age 4)	37	0.85	0.70	0-3.00
Child Spontaneous GI's (age 3)	37	3.78	3.97	0-15
Child Spontaneous GI's (age 4)	39	4.59	6.73	0-26
% of Child's GI's Spont. (age 3)	34	30.8	24.8	0-83.3
% of Child's GI's Spont. (age 4)	38	28.2	29.9	0-100.0

At both home visits, the mean information index was below 1, indicating that this was a much more difficult task for the children than the book reading task, requiring them to give information without props or text to help them tell their story. Mothers tended to prompt the children repeatedly or to change questioning strategies in order to get a response. Mothers could simply repeat a question, or they could reduce the level of demand on the child in asking the question, moving from an open-ended questions (e.g., "What did we do yesterday?"), to a more specific question (e.g., "What did we do at the park yesterday?"), to a yes-no question (e.g., "Did we play on the swings?"). Some mothers had to use this stepping-down strategy repeatedly in order to get a response from the child, resulting in a low index. Representing the high end of the ranges of the index was one dyad's conversation, in which the mother simply nominated a topic and the child reported the entire event with little or no help from the mother.

The difficulty of this task for the children is also reflected in the measures of frequency of spontaneously given information. Children, on average, spontaneously gave information only three or four times at each home visit, accounting for about 30 percent of their give information moves.

Mealtime Conversations

Recordings of mealtime conversations provided a source of more naturalistic talk to the samples of mother-child interaction. These conversations involved not only the

child and mother, but other family members as well.

After the first home visit, 27 of 39 (69.2 percent) families returned tapes of mealtime conversations. Another 27 families returned tapes after the second home visit. A total of 31 different families returned at least one tape, while 23 families returned tapes for both first and second home visits.

There was a wide range of family constellations represented in the first cohort. Some families included other adults who contributed to mealtime conversations. Fathers were present in 14 of the 31 families' conversations (45 percent), and grandparents were part of the constellation in 2 homes (7 percent). Fifteen families (48 percent) were single-parent families. In 12 families (39 percent), the target child was the only child, and the remaining 19 families included other siblings.

At the end of each home visit, mothers were loaned a blank tape and tape recorder and asked to record what they considered to be a typical mealtime. How the mothers construed the task is of interest. Mothers were aware of the fact that we were studying their child's language and, because they were asked to place the tape recorder near the target child, the implicit message was that we wanted talk from that child. Therefore, the mother tended to make a concerted effort to draw that child into the conversation, occasionally discouraging the contributions of siblings, and even, in one instance, shushing a sister when she attempted to speak up. A few mothers, especially in the first home visit, thought that this was a request for a performance, and asked the child to say his ABC's or sing a song. This kind of performance was less frequent in the second and third home visits. The presence of the tape recorder, then, made the situation somewhat artificial in varying degrees, but overall the conversations are believed to be a fairly representative sample of talk among family members at the time it was recorded.

Mealtimes provided us with the opportunity to listen in on patterns of interaction among family members. We were particularly interested in extended conversations in which family members jointly constructed narratives or explanations. Both of these types of talk were identified and analyzed for content and structure.

In order to get a sense of the target child's linguistic environment, we computed the proportion of the mealtime conversation that was narrative and explanatory talk. Narrative talk included conversation about past or future events, and explanatory talk sought to clarify logical connections between events, objects, or concepts. We hypothesize that the presence of these kinds of decontextualized talk will facilitate the ability to comprehend extended discourse and produce such discourse independently. Example 3 is a sample of narrative talk in one family at the first home visit, in which two preschoolers tell their older sister about an exciting event they had experienced together. Example 4 contains an explanation given by a child, in which she provides evidence for an assertion she has made.

Example 3

*Sister:	Darcy know what?
*Sister:	they made me look in Scott's yard.
*Sister:	know what they saw under the table?
*Darcy:	what?
*Sister:	a dead mouse.
*Child:	and we saw the blood!

*Sister: and the heart.
*Mother: okay okay we're eating.
*Sister: no!
*Sister: we only saw the heart.
*Mother: yeah Sister.
*Darcy: oh.
*Sister: I hated it.

Example 4

*Child: Sister had gym today.
*Mother: Sister had gym?
*Child: uhhuh.
*Child: 'cause I saw her coming out of the gym.
*Mother: oh you did?
*Child: mmhm.

We recorded the frequency of narratives and explanations, and the proportion of the mealtimes that were narrative or explanatory in nature. We computed how much of the narrative talk and explanatory talk that each family member, especially mothers and target children, were responsible for. This was computed as a percentage of the narrative or explanatory talk in number of utterances that the individual produced. Table 3 presents the means, standard deviations and ranges of each of these measures when the child was age 3 and again at age 4.

Table 3

Mealtime Variables

Variable	n	Mean	SD	Range
# of Narratives (age 3)	23	4.52	3.25	1-15
# of Narratives (age 4)	21	4.19	2.67	1-11
% of Narrative Talk (age 3)	23	17.9	13.1	1.1-42.7
% of Narrative Talk (age 4)	21	11.9	7.4	0.2-30.6
# of Explanations (age 3)	27	16.8	13.2	2-45
# of Explanations (age 4)	27	15.0	8.1	0-27
% of Explanatory Talk (age 3)	27	17.2	8.2	3.4-30.7
% of Explanatory Talk (age 4)	27	15.3	8.4	0-35.1
% of Exp. Talk by Child (age 3)	27	27.5	14.4	0-50.5
% of Exp. Talk by Child (age 4)	27	29.7	14.5	0-66.7
% of Exp. Talk by Mother (age 3)	27	47.3	17.1	13.3-91.7
% of Exp. Talk by Mother (age 4)	27	47.0	13.5	21.4-73.8
% of Exp. Talk by Father (age 3)	14	15.7	16.0	0-48.3
% of Exp. Talk by Father (age 4)	11	17.3	11.4	0-33.7

There are roughly equivalent amounts of explanatory and narrative talk, on average, in both the first and second mealtimes. Children, even at ages 3 and 4, are very involved in explanatory talk, contributing 27.5 and 29.7 percent of the utterances in segments of explanatory talk. On average, fathers are infrequent contributors to mealtime explanations, as reflected in Table 3, and in mealtime conversations overall.

Cross Task Correlations. An examination of correlations between the measures of the three tasks revealed positive associations between several child performances in the different activities (see Table 4).

Table 4

Cross-Task Correlations of Child Measures at Ages 3 and 4

	Mealtime % Exp. Talk by Child (3)	Mealtime % Exp. Talk by Child (4)
Book Reading Index X (3)	.43*	
Elicited Report # Spont. GI's (4)	.40*	.55**
Elicited Report % of Spont. GI's (4)		.41*

*p<.05
**p<.01
***p<.001

The child whose family produces a large proportion of explanatory talk during mealtime at age three tends to have a high information index during the reading of the familiar book at age three and to spontaneously give information at a high rate at age four. At age four, the proportion of child talk that was involved with explanations at mealtimes was associated with two of the measures of children's spontaneous talk during elicited reports. These associations suggest some predictability in child language performance in different activities, but also demonstrate that there are a number of different language components involved in these tasks.

Outcome Measures

The families in this study represent a wide range of language environments. The three tasks we have explored give us a sense of the kinds of experiences and support these preschoolers receive in their acquisition of literacy. In this section we will explore the relationships between these home language measures and a set of literacy outcome measures at age five.

When the children in our sample were five years old, we administered a series of tests which we call the SHELL-K (the School Home Early Language and Literacy

battery - Kindergarten level). This battery of tests, which we have developed specifically for our study, assesses aspects of each child's language and literacy development; in this analysis, the results of these tests are being used as interim outcome measures related to the predictors already presented. In this section we will present an explanation of each of the tasks within the SHELL-K, the results of the SHELL-K for the cohort as a whole, and the correlations between the outcome measures and the home predictors, in order to illustrate the effect that the home environment has had on the children's early literacy development.

The SHELL-K Test Battery

The SHELL-K battery consists of 1) two standardized tests: the Peabody Picture Vocabulary Test (PPVT) (Dunn & Dunn, 1981), a test of verbal development, and the Test of Non-Verbal Intelligence (TONI) (Brown, Sherbenou, & Johnsen, 1982), a test of non-verbal development; 2) a series of emergent literacy tasks from the Early Childhood Diagnostic Instrument (Mason and Stewart, 1989): phonemic awareness, letter recognition, understanding of print concepts, and writing ability; and 3) several instruments developed to assess decontextualized oral language skill: a picture description, a word definition task, a narrative construction task, and a story comprehension task. This battery of tests was administered to each child at home by a home visitor who had been trained in test administration for this age group.

PPVT and TONI. Both the PPVT and the TONI were scored in the conventional fashion yielding raw scores, quotient and percentile rankings related to national norms. On the PPVT our sample of children had a mean raw score of 63 with a range of 37 to 101. The mean standard equivalent score was 97, only slightly below the national norm, with a range of 70 to 133. For the purposes of this presentation, however, it is the raw scores, not the nationally normed scores, which will be used for comparison. On the TONI, the mean score for the quotient was 104 with a range of 70 to 136. It is interesting to note, that the TONI results do not correlate with any of the other outcome measures or any of the home or school predictor variables at this time, indicating that the cluster of language events which we are analyzing are a distinctive set, not related to any underlying nonverbal intelligence factor.

The Comprehensive Assessment Program (CAP), Early Childhood Diagnostic Instrument (ECDI). The CAP is designed for use with preschool age children and contains three different strands: an emergent literacy strand, a language strand, and a basic concepts strand. For the purposes of our assessment we chose to use the following tasks from the emergent literacy strand: Environmental Print In and Out of Context, Upper and Lower Case Letter Naming, Beginning and Ending Word Sound Awareness, Story and Print Concepts, and Writing.

The scoring of the tasks from the emergent literacy strand was done as prescribed by the CAP. Each child received individual scores on each task as well as a total score. The scores were normally distributed for the cohort with a mean of 74 and a range of 27 to 111. Children at the upper end of this range demonstrated considerable control of preliteracy skills for kindergarten age children. A composite score was developed from the individual task scores using principal components analysis; this composite became the variable which was used in the correlation analyses with the home and school predictors.

The definitions task. The definitions task, which combined words from the CAP and a protocol developed by Snow and colleagues (Snow, Cancino, Gonzalez, & Shriberg, 1989; Snow, Cancino, De Temple, & Schley, 1991), involved asking each child to define 14 nouns, using the prompt, "what's a _____?" Some sample answers

are: for bird, "it's a flying animal with wings" and "it flies and lives outside;" for thief, "is a person who sneaks around and gets things that doesn't belong to them" and "a thief is for stealing stuff."

Scores were derived, based on Snow's scoring method, for formal definitional quality (presence and quality of the superordinate and relative clause). Half of the sample had a score of 0 on the variable percent of formal definitions indicating that they did not give any formal definitions. At the other end of the spectrum, one child's definitions were all formal definitions.

A further task in this section was taken from the CAP. This consisted of asking each child to supply a superordinate. The request took the form, for example, "what are tables and chairs?" After the child's answer was given, she was then asked, "can you tell me another kind of furniture?" The scores on this superordinates task was highly correlated with the percent of formal definitions given ($r = .54$, $p < .0005$), indicating that children who were able to provide a superordinate when asked directly were more likely to also provide a superordinate (the basic requirement for a formal definition) when giving a definition. A definitions composite was constructed using principal components analysis from scores on quality of definition, supplemental information, percent of formal definitions, and number of superordinates. This composite variable was used in the correlation analyses with the home predictors.

Story comprehension: The Snowy Day. The story comprehension task involved having the child and tester look at the book The Snowy Day by Ezra Jack Keats as the tester read the book aloud and asked comprehension questions during the story. The total score for this task was the number of questions answered correctly by the child. With a total possible score of 13, the range was from 3 to 13 with a mean of 7.7. The scores were relatively normally distributed on this task.

Picture description. For the picture description, the child was handed a slide viewer with a slide in it depicting a brightly colored scene. The tester asked the child to look carefully at the picture, and then to describe the picture as completely as possible because the tester could not see which slide this was from a group of slides which she had brought along. A sample of a picture description which displays the specificity markers we were looking for is found in Example 5.

Example 5

> I see a clown and a man holding money. I see a man going to the circus and I see a girl and her little girl going to the circus.

The picture descriptions were scored for the total number of words, for the percent of adjectives, verbs, and locatives, and for whether a frame ("there's a ...," "it's a ...") was provided. The range for total number of words was from 5 to 72 with a mean of 25. At the low end of this range, children merely listed elements they saw in the picture; at the high end, they were beginning to provide specificity markers. A picture description composite variable was constructed by principal components analysis which incorporated all of these scoring elements.

The narrative construction task: The Bear Story. The narrative construction task involved having the child look at a sequence of three slides which depicted a family of teddy bears in an adventure involving a fly away kite and a baby bear's falling from a tree. The child was allowed to look at the three slides in sequence as often as she wished, but was then asked to put the slide viewer down before telling the story in order

to avoid another picture description. A sample bear story appears in Example 6.

Example 6

> One's rolling around in their little wagon and then one of the bears got up the tree and got the kite and then he fell down and they said, 'Speak to me' and he didn't answer 'cause he fell off the tree.

The bear story was scored for length by counting the number of words and number of clauses. The mean number of words was 55 with a range of 12 to 190. The mean number of clauses was 8.4 with a range of 2 to 29. Not surprisingly, these two scores were highly correlated.

The bear story was also scored for structure using a coding scheme adapted from Peterson and McCabe (1983). Using principal components analysis, a composite measure was created, which demonstrated the extent to which the child provided the narrative framework for the story (number of clauses, words divided by clauses, the proportion of clauses providing background or setting information, and the presence of clauses which contained formulaic openings or closings). This composite variable was then used in the correlation analyses with the home predictors.

Correlations among the SHELL-K Scores

In order to ascertain the existence of relationships among these outcome measures, we examined correlations among these outcome variables. As reported above, the TONI scores were not correlated with the other outcome variables. The other measures, however, were all correlated to from one to five other variables ($r = .32$ to .64, $p < .05$) indicating that these are related tasks, but that they are not measuring the same abilities.

Home Predictors and SHELL-K Outcomes

Table 5 contains a series of correlation matrices of home activities measures and outcome measures. Outcome variables appear in the left-hand column. These variables include: the Peabody Picture Vocabulary Test (PPVT); the composite variable of the scores on the subtests of the Comprehensive Assessment Program (CAP); the definitions composite variable (Formal Definitions); the total correct answers on the Snowy Day comprehension questions (Snowy Day); the Bear Story structural composite variable (Bear Story); and the picture description composite variable (Pic. Description).

The home task variables which were correlated with the outcome variables are listed across the top. These variables are: the score on the elicited report index at the first home visit (ER Index - age 3), the number of utterances by the child in the elicited report which were coded as give information spontaneously at the second home visit (ER # GI:S - age 4)), the percentage of talk at the mealtime that was explanatory talk at the second home visit (MT % Exp. - age 4), the number of narratives told at the mealtime at the second home visit (MT # Narr. - age 4), the percentage of talk at the mealtime which was narrative talk at the second home visit (MT % Narr. - age 4), the number of utterances by the mother which were coded as non-immediate when reading The Very Hungry Caterpillar at the first home visit (BR # Mot Non-Imm - V age 3), the percentage of the talk during the reading of the book of choice which was coded as non-immediate during the first home visit (BR % Non-Imm - X age 3), and the book reading index for the book of choice at the second home visit (BR Index - X age 4).

Table 5

Correlations Between Home Language Activities and Literacy Outcomes

	Independent Performance	
	ER Index (age 3)	ER GI:S (age 4)
Formal Definitions	.39*	
Bear Story		.44**

	Vocabulary	
	MT % Exp. (age 4)	MT # Narr. (age 4)
PPVT	.61***	.45*
Pic. Description	.44*	

	Mealtime Narrative	
	MT # Narr. (age 4)	MT % Narr (age 4)
Snowy Day	.51*	.51*

	Emergent Literacy	
	BR # Mot Non-Imm (V - age 3)	BR % Non-Imm (X - age 3)
CAP	.41*	.44**

	Bookreading Narrative	
	BR # Mot Non-Imm (V - age 3)	BR Index (X - age 4)
Snowy Day		.49**
Bear Story	.42*	.48**

* $p < .05$
* $p < .01$
* $p < .001$

In assessing the connections between the home task variables and the outcome variables we looked particularly at the types of demands that the tasks made on the mother and child (or family and child) in the case of the home tasks, and the child alone, in the case of the SHELL-K test battery.

Elicited reports: Independent performance. The elicited report, for instance, is the most decontextualized of the home language tasks. In this task the mother and child are asked to produce a co-constructed narrative on the spot; unlike book reading, there are no supporting materials available for the mother and child to use to focus their attention or act as a springboard for discussion. Two of the three outcome variables which are correlated with two of the elicited report variables are ones which required an unsupported and well-structured verbal performance by the child: the definitions composite and the Bear Story structural composite. Therefore, how much a child was able to contribute to the construction of the elicited report at the first home visit and how much spontaneous information the child gave at the second home visit predict how well the child would do on the definitions test and developing the structural aspects of the Bear Story, respectively. We think of this combination of predictors and outcomes as measuring independent performance.

Mealtimes: Vocabulary. In one sense the mealtimes are at the opposite end of the task demand spectrum from the elicited report, i.e. we made no particular requests concerning mealtimes except that the tape recorder be near enough the child in the study so that the child could be heard. It was, in fact, our decision to code the mealtimes looking for two kinds of decontextualized talk - explanatory talk and narratives. Interestingly, these two different types of talk, although collected in the same context - the family dinner table - are associated with some similar and some different outcomes. The percent of explanatory talk and the number of narratives at the second mealtime are correlated with the child's score on the Peabody Picture Vocabulary Test; the percent of explanatory talk at the second mealtime is also correlated with the composite variable for the picture description. These three findings indicate an association between explanatory and narrative talk and vocabulary development, as the PPVT is a direct test of vocabulary, and the components of interest in the picture description composite are the use of verbs, adjectives, and locatives. These findings would indicate that the proportion of talk at the mealtime which is explanatory or narrative in nature predicts how well the child who has heard this type of talk - whether she did or did not contribute much to it - will do later on tasks which test vocabulary development. This set of predictors and outcomes reflect a child's vocabulary.

Mealtimes: Narrative. The mealtime narratives, however, are also associated with the child's ability to answer comprehension questions during the reading of The Snowy Day. Both the number of narratives and the proportion of narrative talk at the second mealtime are correlated with the total score which the children achieved on the comprehension questions, indicating an ability to follow and understand a narrative even though the contexts - an oral performance at mealtime by any member of the family and a book reading with the child and the tester - are quite different. We consider this combination of measures as reflecting a child's narrative understanding.

Book reading: Emergent literacy. The book reading task also displays a duality of associations, with correlations to both abilities in print and emergent literacy, and comprehension and development of narrative structure. Two measures, the number of non-immediate utterances by the mother during the first reading of The Very Hungry Caterpillar and the proportion of non-immediate talk during the first reading of the book of choice, are correlated with the child's composite score on the print and emergent

literacy tasks of the CAP. This indicates, no doubt, that the mother who is doing a quality book reading job to her 3 1/2 year old, is also exposing her child to a variety of book experiences which helps the child to develop a familiarity with print and with how books are used and handled. We think of this combination of predictors and outcomes as measuring emergent literacy.

Book reading: Narrative. One of these variables - the number of non-immediate utterances by the mother in the first reading of The Very Hungry Caterpillar - is also correlated with the structural composite of the Bear Story indicating an association with narrative construction as well as with print and emergent literacy. Further, a third book reading variable - the book reading index for the book of choice at the second home visit, which is a measure of how much the child contributes to the discussion during the book reading - is correlated with the same structural composite for the Bear Story and with the comprehension measure for The Snowy Day. It is interesting that it is the book of choice which yields this association in that this book is one which the mother and child themselves choose to read and is usually a book available in the home which they may have read together before. How much of a lead the children take in discussing this book at four predicts both how well they will be able to answer the comprehension questions on The Snowy Day and how well they will be able to structure the telling of the Bear Story. These variables reflect a child's narrative understanding and construction.

Conclusion

The families in this study represent a wide range of language environments. The three tasks we have explored give us a sense of the kinds of experiences and support these preschoolers receive in their acquisition of literacy. A variety of settings are important, not just those most obviously related to literacy, i.e., book reading.

The cases we have examined support a multi-componential view of language. A child who was strong in one language task may have been weak in another, and a mother who focussed on specific kinds of talk might have de-emphasized another. Language and literacy abilities are related but not identical.

These results are preliminary indications of associations between early home language environment and later school achievement and literacy. It is our belief that, as the children in our sample move into their later elementary school years, the relationships between early language experience and higher level school abilities like reading comprehension and writing expository text will emerge.

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